

Appearance of Kampung Chicken Production in Use Feed Protein and Energy are Different

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ABSTRACT

Kampung chicken or Buras chicken is a type of local chicken that is widely known and kept by people in all corners of Indonesia. With the development of science and technology, the livestock sector has made a major contribution through genetic improvement to produce a new generation which later emerged as kampung chicken livestock. This study specifically analyzed the production performance of kampung chickens using different protein and energy feeds with a research duration of three months from October to December 2022. The study used a completely randomized design (CRD) consisting of 5 treatments and 4 replications. The treatments included: P0 = Feed + 21% protein and EM 3300 kcal, P1 = Feed + 20% protein and EM 3100 kcal, P2 = Feed + 19% protein and EM 2900 kcal, P3 = Feed + 18% protein and EM 2700 kcal, P4 = Feed + 17% protein and EM 2500 kcal. Data analysis using ANOVA and Duncan test. Findings The use of different levels of protein and energy metabolism of feed in kampung chickens has a significant effect on feed consumption, body weight, and feed conversion given.

Keywords: Kampung Chicken, Productivity, Protein, Energy

I. INTRODUCTION

Kampung chicken or buras chicken is a type of local chicken that is widely known and kept by people in all corners of Indonesia. With the development of science and technology, the livestock sector has made a major contribution through genetic improvement to produce a new generation, which later emerged other types of kampung chickens [1],[2],[3].

Kampung chicken is the result of crosses between male kampung chickens and egg-laying hens [4]. Efforts to increase kampung chicken production have been carried out through cross-breeding methods without neglecting the quality of the feed provided [5]. Increasing the number of populations and the level of production of poultry needs to be balanced with an increase in the availability of feed [3]. Concentrate feed

consists of 2 types, namely energy source concentrate feed and protein source concentrate feed. Feed is the main source of protein and energy for livestock [6],[7].

In the body of livestock, some of the energy is wasted in feces, urine, and part of it is metabolic energy [8],[9]. Metabolic energy is energy that is ready to be used by livestock for various activities, namely maintaining body temperature and physical activity. In addition, for growth, repair of body cells, reproduction, and production [10], also affects the growth of body weight, seeds, and maintenance management [11],[12].

Chickens need food for basic life, body growth, and laying eggs [13]. Food substances needed by chickens consist of protein, fat, carbohydrates, vitamins, minerals, and water [14]. This need must be proportional to the feed given. This study aims to look at the performance of kampung chicken production using different levels of protein and the energy of feed.

II. METHODS AND MATERIAL

The materials used in the study were 80 kampung chicken DOC, BP 11 commercial feed, corn, rice bran, fish meal, coconut oil, vitastres, vaccines, clean water, and disinfectants. The equipment used in the research were scales, feeders, drinking bowls, cameras, and writing instruments. Cages as a place to raise experimental chickens, measuring 1 x 1 meter as many as 20 cage plots, each cage plot equipped with equipment for feeding, drinking, and 45-watt incandescent lamps.

The rearing of kampung chickens as experimental livestock in the study was carried out in 2 stages. The first stage of domestic chicken is aged 1-7 days. At this stage, experimental chickens were given commercial feed BP-11, which then reduced the percentage of BP-11 feed and substituted with a mixture of corn, bran,

fish meal, and coconut oil to get used to the experimental chickens in consuming the feed ingredients used in the study. The second stage of raising livestock aged 2-8 weeks, is the stage of collecting data from each treatment of different levels of protein and energy metabolism of feed. The provision experimental chicken feed was given 2 times a day, namely morning and evening. Meanwhile, the remaining feed in the feeder is taken back every morning and then weighed to determine the daily feed consumption of experimental chickens. The provision of drinking water is given ad libitum.

Kampung chickens in the study before being included in the cage plots were first weighed to determine their initial body weight, and each cage plot was filled with 4 chickens. The placement of experimental chickens in each cage plot was done randomly. The study used a completely randomized design (CRD) in one direction consisting of 5 treatments and 4 replications.

The variables observed in this study were feed consumption, body weight gain, and feed conversion. The data obtained were analyzed using a completely randomized design of variance. If there are significantly different treatments then proceed with further tests *Duncan Multiple Range Test* (DMRT).

III. RESULTS AND DISCUSSION

A. Feed Consumption

Feed consumption is the amount of feed consumed in a certain amount of time to meet basic life needs [15]. The value of feed consumption can be determined by reducing the amount of feed given minus the amount of feed remaining. The average value of kampung chicken feed consumption during the study can be presented in Table 1.

Table 1. Consumption of feed with different levels of protein and metabolic energy kampung chicken (g/head/day)

Repeat	Treatment				
	P0	P1	P2	P3	P4
1	38,03	35,96	30,82	25,67	26,92
2	33,83	36,71	36,37	34,02	22,18
3	34,29	34,48	28,38	27,99	21,11
4	35,57	38,43	30,62	30,21	18,82
Total	141,72	145,58	126,19	117,89	89,0
Average	35,43±1,88 ^{cd}	36,40±1,64 ^d	31,55±3,40 ^{bc}	29,47±3,55 ^b	22,26±3,41 ^a

Information: ^{a,b,c,d} is a superscript indicating a significant difference ($P < 0,05$)

Table 1 shows that the treatment of different levels of protein content and metabolic energy in kampung chicken feed shows that treatment P1 has the highest feed consumption of 36.40 g/head/day, then treatment P0 of 35.43 g/head/day, there was a decrease in feed consumption from treatment P2 (31.55 g/head/day), P3 (29.47 g/head/day) and the lowest was treatment P4 (22.26 g/head/day) or with a total reduction in chicken feed consumption villages in this study amounted to 14.14 g/head/day or with a reduction percentage of 38.85%. The results of statistical analysis of the treatment of feeding with different levels of protein content and metabolic energy showed that the treatment was significantly different ($P < 0.05$) in the consumption of kampung chicken feed up to 8 weeks of age in this study.

Further testing of the treatment using the Duncan Multiple Range Test (DMRT) showed that the P0 treatment did not show a significant difference to P1, P2, and P3. Treatment P1 showed significant

differences with treatments P2, P3, and P4. Treatment P2 showed no significant difference from treatment P3 and was significantly different from P4, then treatment P3 showed a significant difference from P4. Factors affecting the low feed consumption in this study were due to the crude fiber content, where the lowest feed crude fiber was in treatment P1 (3.7%) which also showed a high level of consumption (36.40 g/head/day) and crude fiber feed increased to 5.5% in the P4 treatment with an increasing percentage of 62.27% and was the treatment with the lowest feed consumption.

B. Body Weight Gain

Body weight gain is a reflection of the ability of kampung chickens to convert treated feed nutrients into the meat. An overview of the average body weight gain of kampung chickens as experimental cattle with different levels of protein and energy metabolism in each treatment in this study can be presented in Table 2.

Table 2. Body weight gain by protein level and metabolic energy different kampung chicken (g/head/day)

Repeat	Treatment				
	P0	P1	P2	P3	P4
1	15,61	13,46	10,13	6,53	8,81
2	14,68	13,90	13,09	11,42	5,50
3	14,33	12,84	9,70	8,02	5,45
4	14,39	14,46	11,33	9,62	3,95
Total	59,01	54,66	44,26	35,58	23,71
Average	14,75±0,59 ^c	13,66±0,68 ^c	11,07±1,52 ^b	8,90±2,10 ^b	5,93±2,05 ^a

Information: ^{a,b,c,d} is a superscript indicating a significant difference ($P < 0,05$)

Table 2 shows the value of kampung chicken body weight obtained in this study treatment P0 (PK 21% and EM 3300 kcal/kg) was a treatment with a higher rate of body weight gain of 14.75 g/head/day, than the increase The body weight of experimental chickens decreased with a decrease in the level of protein content and the lowest feed metabolic energy in the P4 treatment of 5.93 or with a decreasing percentage of 59.80%. The results of statistical analysis showed that the level of protein content and metabolic energy of feed in treatment P0 showed a decrease that was not significantly different from treatment P1, however, it still showed a decrease in body weight gain that was significantly different ($P<0.05$) and occurred simultaneously in treatment P2. P3 and P4. Treatment

P1 showed a significant difference in body weight loss ($P<0.05$) to treatments P2, P3, and P4, then treatment P2 showed a decrease in body weight which was not significantly different from treatment P3 but showed a significant decrease in body weight ($P<0.05$) to treatment P4, then treatment P3 showed a significantly different decrease in body weight ($P<0.05$) with treatment P4.

C. Feed Conversion

The feed conversion value is generally used as a criterion in determining the efficiency of feed use. The average feed conversion value for kampung chickens fed feeds with different protein content and metabolic energy can be presented in Table 3.

Table 3. Feed conversion to protein and energy levels of feed metabolism
What's different is the kampung chicken

Repeat	Treatment				
	P0	P1	P2	P3	P4
1	2,44	2,67	3,04	3,93	3,06
2	2,30	2,64	2,78	2,98	4,03
3	2,39	2,69	2,92	3,49	3,38
4	2,45	2,66	2,70	3,14	4,77
Total	9,60	10,66	11,44	13,54	15,74
Average	2,40±0,07 ^a	2,67±0,02 ^a	2,86±0,15 ^{ab}	3,39±0,42 ^{bc}	3,94±0,70 ^c

Information: Superscript indicates a significant difference ($P<0.05$)

Table 3 shows the feed conversion value of kampung chickens obtained in this study treatment P0 is a treatment with a lower feed conversion rate of 2.40, then the conversion value of kampung chicken feed as experimental livestock in this study increases along with a decrease in the level of protein content and feed metabolic energy, namely in the P4 treatment of 3.94 or with a decreasing percentage of 60.91%.

The results of statistical analysis showed that the level of protein content and energy metabolism of feed in treatment P0 showed an increase that was not significantly different from treatments P1 and P2, however, it still showed an increase in feed conversion that was significantly different ($P<0.05$) to treatments

P3 and P4. Treatment P1 showed an increase in feed conversion which was not significantly different from treatment P2 but significantly different ($P<0.05$) from P3 and P4. Treatment P2 showed an increase in feed conversion which was not significantly different from treatment P3 but significantly different ($P<0.05$) from treatment P4, while treatment P3 showed an increase in feed conversion value which was not significantly different from treatment P4.

IV. DISCUSSION

Consumption of kampung chicken feed with different treatment levels of protein and metabolic energy in each treatment was in the range of 36.40-

22.26 g/head/day [16]. Information on feed consumption. kampung chicken feed consumption is in the range of 24.93-26.16 g/head/day [17]. Consumption of kampung chickens aged 45 days was in the range of 65.91-68.35 g/head/day. ranged from 45.12-38.18 g/head/day [18]. Age 8-13 weeks ration consumption can reach 56.50- 70.64 g/head/day. Statistically, the treatment of different feed proteins and energy content in the feed showed a significant difference ($P<0.05$) in the consumption of kampung chicken feed. A protein level of 18% significantly ($P<0.05$) increased feed consumption and weight gain of kampung chickens. Table 1 shows that the P0 treatment did not show a significant difference with the P1 and P2 treatments, but along with a decrease in the level of protein content and metabolic energy of the feed to 18% protein and EM 2700 kcal (P2) to 17% protein and EM 2500 kcal (P4) so that had a significantly different effect on reducing feed consumption ($P<0.05$).

The difference in the decrease in feed consumption as the level of protein and EM content in the feed decreases may be influenced by the balance between protein content and metabolic energy and crude fiber content of the treated feed [19],[20]. Poultry ration consumption can be affected by the balance between the metabolic energy content and protein contained in the ration, ambient temperature, physical form of the feed, and health and age of the chickens [21],[22]. The level of protein content and EM of feed was getting lower in this study indicating that the level of feed consumption was low. This is probably due to the crude fiber content of the feed. Research shows that the decrease in protein and energy metabolism of the feed is also followed by an increase in crude fiber content.

Kampung chicken body weight gain with different levels of protein and energy metabolism in each treatment was in the range of 5.93-14.75 g/head/day. Kampung chicken body weight gain is 6.80-8.67 g/head/day and 10.13-11.33 g/head/day. The growth rate of kampung chickens is still good with weight

gains of 0.6-0.8 kg or 13.33-17.78 g/head/day at 45 days of age with relatively high feed consumption. Body weight gain is one indicator of growth [23]. Body weight gain is an indicator of growth and height or low growth is strongly influenced by genetics and the environment including nutrient content and feed quantity [24].

Treatment statistics for protein content and metabolic energy of different feeds in feed on body weight gain of kampung chickens in treatment P0 showed no significant difference to P1 but were significantly different ($P<0.05$) to treatments P2, P3, and P4. Furthermore, the P1 treatment simultaneously showed a significant difference from the P2, P3, and P4 treatments. Differences in kampung body weight gain in this study suggest that there is an imbalance in the nutritional content of the treated feed, both feed protein, metabolic energy, and crude fiber which results in a decrease in feed consumption. Factors decreasing feed consumption caused by an imbalance between crude protein content and metabolic energy in the ration can affect the growth of chickens, then protein deficiency will occur which causes growth cessation and growth loss on average 6-7% of body weight per day.

The conversion of kampung chicken feed to the treatment of different levels of protein and metabolic energy in each treatment was in the range of 2.40-3.94. the crude protein content of 17% and metabolic energy of 2900 kcal/kg of feed has a feed conversion value of 3.49. The conversion of kampung chicken feed by feeding fermented cocoa shell flour was 2.58-3.24. Kampung chicken feed conversion ranges from 2.87 to 3.30.

The feed conversion value which showed a smaller trend was found in the P0 treatment with a value of 2.40 which then numerically increased the feed conversion value as the protein content and metabolic energy of kampung chicken feed decreased by 3.94. Although the feed conversion value in treatment P0

was not significantly different from treatment P1 and P2, treatment P3 and P4 showed a significant difference ($P < 0.05$). The difference in feed conversion values in this study is thought to be due to the low quality of feed for the P3 and P4 treatments which has implications for low feed consumption and not optimal body weight gain. Factors affecting feed efficiency include growth rate, feed metabolic energy content, body weight, adequacy of nutrients in feed, ambient temperature, and livestock health [25],[26].

V. CONCLUSION

The results of the study can be concluded that the level of protein and energy metabolism of different feed in kampung chickens has a significant effect on feed consumption, body weight, and feed conversion given.

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